

ABSTRACT

A self-aligning coupling device for installation in a channel having an open end and a pair of substantially parallel side walls. The device includes an elongate connecting portion having a longitudinal axis, a channel abutment portion, and at least one laterally projecting lug. In use, the coupling device is installed in the channel with the channel abutment portion located at least partially within the channel and the laterally projecting lug located outside the open end of the channel. The channel abutment portion is formed such that when aligned in a first angular position within the channel it abuts the side walls of the channel to prevent rotation of the device in a first rotational direction about said longitudinal axis, while allowing rotation in a second, opposed rotational direction. The lug is formed such that in said first angular position it extends beyond at least one of the side walls of the channel. When the coupling device is retracted into the channel while simultaneously applying a torque to rotate the device in said first rotational direction towards said first angular position, the channel abutment portion abuts the side walls of the channel thereby aligning the lug to extend beyond at least one of the side walls of the channel and preventing the coupling device from being fully retracted into the channel. Various methods and apparatus for applying suitable translational and rotational forces to the self-aligning coupling device, and to form adjustable clamp assemblies, are also provided.